WHAT IS CLAIMED IS:

1. An isolated immunogenic peptide of 50 or fewer amino acids comprising an amino acid sequence $X_1X_2X_3PSAPSPX_4$ (SEQ ID NO:5), wherein:

X_1 can be any amino acid;

X_2 can be L, M, A, I, V, or T;

X_3 can be a hydrophobic residue, methionine or alanine; and

X_4 can be V, M, L, A, I, or T.

2. An immunogenic peptide of claim 1 wherein X_1 is tyrosine (SEQ ID NO:34).

3. An immunogenic peptide of claim 1 wherein X_2 is leucine (SEQ ID NO:35).

4. An immunogenic peptide of claim 1 wherein X_3 is methionine (SEQ ID NO:36).

5. An immunogenic peptide of claim 1 wherein X_4 is valine (SEQ ID NO:37).

6. An immunogenic peptide of claim 1 comprising an amino acid sequence selected from the group consisting of GVFPSAPSPV (SEQ ID NO:6), YVFPSAPSPV (SEQ ID NO:7), GLFPSAPSPV (SEQ ID NO:8), GVMPSAPSPV (SEQ ID NO:9), YLFPSAPSPV (SEQ ID NO:10), and GLMPSAPSPV (SEQ ID NO:11).

7. An immunogenic peptide of claim 1, which peptide is a ten amino acid peptide having an amino acid sequence selected from the group consisting of GVFPSAPSPV (SEQ ID NO:6), YVFPSAPSPV (SEQ ID NO:7), GLFPSAPSPV (SEQ ID NO:8), GVMPSAPSPV (SEQ ID NO:9), YLFPSAPSPV (SEQ ID NO:10), and GLMPSAPSPV (SEQ ID NO:11).

8. A composition comprising:

i) an isolated immunogenic peptide of fifty or fewer amino acids comprising the sequence of $X_1X_2X_3PSAPSPX_4$ (SEQ ID NO:5), wherein:

X_1 can be any amino acid;

X_2 can be L, M, A, I, V, or T;

X_3 can be a hydrophobic residue, methionine, or alanine ; and

X_4 can be V, M, L, A, I, or T; and,

ii) a pharmaceutically acceptable carrier.

9. A composition of claim 8 wherein X_1 is tyrosine (SEQ ID NO:34).

10. A composition of claim 8 wherein X_2 is leucine (SEQ ID NO:35).

11. A composition of claim 8 wherein X_3 is methionine (SEQ ID NO:36).

12. A composition of claim 8 wherein X_4 is valine (SEQ ID NO:37).

13. A composition of claim 8 comprising an amino acid sequence selected from the group consisting of GVFPSAPSPV (SEQ ID NO:6), YVFPSAPSPV (SEQ ID NO:7), GLFPSAPSPV (SEQ ID NO:8), GVMPSAPSPV (SEQ ID NO:9), YLFPSAPSPV (SEQ ID NO:10), and GLMPSAPSPV (SEQ ID NO:11).

14. A composition of claim 8 which peptide is a ten amino acid peptide having an amino acid sequence selected from the group consisting of GVFPSAPSPV (SEQ ID NO:6), YVFPSAPSPV (SEQ ID NO:7), GLFPSAPSPV (SEQ ID NO:8), GVMPSAPSPV (SEQ ID NO:9), YLFPSAPSPV (SEQ ID NO:10), and GLMPSAPSPV (SEQ ID NO:11).

15. A use of an isolated immunogenic peptide of fifty or fewer amino acids comprising a sequence of $X_1X_2X_3$PSAPSPX_4 (SEQ ID NO:5), wherein:

X_1 can be any amino acid;

X_2 can be L, M, A, I, V, or T;

X_3 can be a hydrophobic residue, methionine or alanine; and

X_4 can be V, M, L, A, I, or T;

for the manufacture of a medicament to raise an immune response to cells expressing a protein encoded by XAGE-1.

16. A use of claim 15 wherein X_1 is tyrosine (SEQ ID NO:34).

17. A use of claim 15 wherein X_2 is a leucine (SEQ ID NO:35).

18. A use of claim 15 wherein X_3 is a methionine (SEQ ID NO:36).

19. A use of claim 15, wherein said peptide comprises an amino acid sequence selected from the group consisting of GVFPSAPSPV (SEQ ID NO:6), YVFPSAPSPV (SEQ ID NO:7), GLFPSAPSPV (SEQ ID NO:8), GVMPSAPSPV (SEQ ID NO:9), YLFPSAPSPV (SEQ ID NO:10), and GLMPSAPSPV (SEQ ID NO:11).

20. A use of claim 15, which peptide is a ten amino acid peptide having a sequence selected from the group consisting of GVFPSAPSPV (SEQ ID NO:6), YVFPSAPSPV (SEQ ID NO:7), GLFPSAPSPV (SEQ ID NO:8), GVMPSAPSPV (SEQ ID NO:9), YLFPSAPSPV (SEQ ID NO:10), and GLMPSAPSPV (SEQ ID NO:11).

21. A method of inhibiting growth of an XAGE-1-expressing cancer cell, said method administering a peptide of fifty or fewer amino acids, said peptide comprising a sequence of $X_1X_2X_3$PSAPSPX_4 (SEQ ID NO:5), wherein:

X_1 can be any amino acid;

X_2 can be L, M, A, I, V, or T;

X_3 can be a hydrophobic residue, methionine, or alanine; and

X_4 can be V, M, L, A, I, or T

wherein administration of said peptide stimulates or activates cytotoxic T lymphocytes, thereby inhibiting growth of said XAGE-1-expressing cancer cell.

22. A method of claim 21 wherein X_1 is a tyrosine (SEQ ID NO:34).

23. A method of claim 21 wherein X_2 is a leucine (SEQ ID NO:35).

24. A method of claim 21 wherein X_3 is a methionine (SEQ ID NO:36).

25. A method of claim 21, wherein said peptide comprises an amino acid sequence selected from the group consisting of GVFPSAPSPV (SEQ ID NO:6), YVFPSAPSPV (SEQ ID NO:7), GLFPSAPSPV (SEQ ID NO:8), GVMPSAPSPV (SEQ ID NO:9), YLFPSAPSPV (SEQ ID NO:10), and GLMPSAPSPV (SEQ ID NO:11).

26. A method of claim 21, wherein said peptide has an amino acid sequence selected from the group consisting of GVFPSAPSPV (SEQ ID NO:6), YVFPSAPSPV (SEQ ID NO:7), GLFPSAPSPV (SEQ ID NO:8), GVMPSAPSPV (SEQ ID NO:9), YLFPSAPSPV (SEQ ID NO:10), and GLMPSAPSPV (SEQ ID NO:11).

27. A method of claim 21, further comprising administering an immunostimulant or an antagonist of immunosuppressive cytokines.

28. An isolated nucleic acid encoding a peptide of fifty or fewer amino acids, said peptide comprising a sequence $X_1X_2X_3PSAPSPX_4$ (SEQ ID NO:5), wherein:

X_1 can be any amino acid;

X_2 can be L, M, A, I, V, or T;

X_3 can be a hydrophobic residue, methionine, or alanine; and

X_4 can be V, M, L, A, I, or T.

29. An isolated nucleic acid of claim 28, wherein X_1 is tyrosine (SEQ ID NO:34).

30. An isolated nucleic acid of claim 28 wherein X_2 is leucine (SEQ ID NO:35).

31. An isolated nucleic acid of claim 28 wherein X_3 is methionine (SEQ ID NO:36).

32. An isolated nucleic acid of claim 28, wherein said peptide comprises an amino acid sequence selected from the group consisting of GVFPSAPSPV (SEQ ID NO:6), YVFPSAPSPV (SEQ ID NO:7), GLFPSAPSPV (SEQ ID NO:8), GVMPSAPSPV (SEQ ID NO:9), YLFPSAPSPV (SEQ ID NO:10), and GLMPSAPSPV (SEQ ID NO:11).

33. An isolated nucleic acid of claim 28, wherein said peptide has an amino acid sequence selected from the group consisting of GVFPSAPSPV (SEQ ID NO:6), YVFPSAPSPV (SEQ ID NO:7), GLFPSAPSPV (SEQ ID NO:8), GVMPSAPSPV (SEQ ID NO:9), YLFPSAPSPV (SEQ ID NO:10), and GLMPSAPSPV (SEQ ID NO:11).

34. A vector comprising a nucleic acid sequence of claim 28 operably linked to a promoter.

35. A vector of claim 34, wherein said nucleic acid sequence encodes a peptide comprising an amino acid sequence selected from the group consisting of GVFPSAPSPV (SEQ ID NO:6), YVFPSAPSPV (SEQ ID NO:7), GLFPSAPSPV (SEQ ID

NO:8), GVMPSAPSPV (SEQ ID NO:9), YLFPSAPSPV (SEQ ID NO:10), and GLMPSAPSPV (SEQ ID NO:11).

36. A composition comprising a vector of claim 34 and a pharmaceutically acceptable carrier.

37. A composition of claim 36, wherein said vector encodes a peptide comprising an amino acid sequence selected from the group consisting of GVFPSAPSPV (SEQ ID NO:6), YVFPSAPSPV (SEQ ID NO:7), GLFPSAPSPV (SEQ ID NO:8), GVMPSAPSPV (SEQ ID NO:9), YLFPSAPSPV (SEQ ID NO:10), and GLMPSAPSPV (SEQ ID NO:11).

38. A use of a nucleic acid of claim 28 for the manufacture of a medicament to inhibit the growth of a XAGE-1-expressing cancer cell in a subject.

39. A use of claim 38, wherein said nucleic acid encodes a peptide comprising an amino acid sequence selected from the group consisting of GVFPSAPSPV (SEQ ID NO:6), YVFPSAPSPV (SEQ ID NO:7), GLFPSAPSPV (SEQ ID NO:8), GVMPSAPSPV (SEQ ID NO:9), YLFPSAPSPV (SEQ ID NO:10), and GLMPSAPSPV (SEQ ID NO:11).

40. A method of inhibiting the growth of an XAGE-1-expressing cancer cell, said method comprising administering an isolated nucleic acid sequence encoding a peptide of fifty or fewer amino acids, said peptide comprising of the sequence $X_1X_2X_3$PSAPSPX_4 (SEQ ID NO:5), wherein: X_1 can be any amino acid; X_2 can be L, M, A, I, V, or T; X_3 can be a hydrophobic residue, methionine, or alanine; and X_4 can be V, M, L, A, I, or T; wherein administration of said nucleic acid sequence results in expression of said peptide, which stimulates or activates cytotoxic T lymphocytes, thereby inhibiting the growth of said XAGE-1-expressing cancer cell.

41. A method of claim 40 wherein X_1 is tyrosine (SEQ ID NO:34).

42. A method of claim 40 wherein X_2 is leucine (SEQ ID NO:35).

43. A method of claim 40 wherein X_3 is methionine (SEQ ID NO:36).

44. A method of claim 40, wherein said peptide comprises an amino acid sequence selected from the group consisting of GVFPSAPSPV (SEQ ID NO:6), YVFPSAPSPV (SEQ ID NO:7), GLFPSAPSPV (SEQ ID NO:8), GVMPSAPSPV (SEQ ID NO:9), YLFPSAPSPV (SEQ ID NO:10), and GLMPSAPSPV (SEQ ID NO:11).

45. A method of claim 40, wherein said peptide has an amino acid sequence selected from the group consisting of GVFPSAPSPV (SEQ ID NO:6), YVFPSAPSPV (SEQ ID NO:7), GLFPSAPSPV (SEQ ID NO:8), GVMPSAPSPV (SEQ ID NO:9), YLFPSAPSPV (SEQ ID NO:10), and GLMPSAPSPV (SEQ ID NO:11).

46. A method for stimulating or expanding T cells, or both, comprising contacting T cells with a synthetic or recombinant amino acid sequence $X_1X_2X_3$PSAPSPX_4 (SEQ ID NO:5), wherein: X_1 can be any amino acid; X_2 can be L, M, A, I, V, or T; X_3 can be a hydrophobic residue, methionine, or alanine; and X_4 can be V, M, L, A, I, or T; thereby stimulating or expanding said T cells, or both.

47. A method of claim 46, wherein X_1 is tyrosine (SEQ ID NO:34).

48. A method of claim 46, wherein X_2 is leucine (SEQ ID NO:35).

49. A method of claim 46, wherein X_3 is methionine (SEQ ID NO:36).

50. A method of claim 46, wherein said peptide comprises an amino acid sequence selected from the group consisting of GVFPSAPSPV (SEQ ID NO:6), YVFPSAPSPV (SEQ ID NO:7), GLFPSAPSPV (SEQ ID NO:8), GVMPSAPSPV (SEQ ID NO:9), YLFPSAPSPV (SEQ ID NO:10), and GLMPSAPSPV (SEQ ID NO:11).

51. A method of claim 46, wherein said peptide has an amino acid sequence selected from the group consisting of GVFPSAPSPV (SEQ ID NO:6), YVFPSAPSPV (SEQ ID NO:7), GLFPSAPSPV (SEQ ID NO:8), GVMPSAPSPV (SEQ ID NO:9), YLFPSAPSPV (SEQ ID NO:10), and GLMPSAPSPV (SEQ ID NO:11).

52. A method of claim 46, wherein said T cells are isolated from bone marrow, or a fraction thereof, of a patient.

53. A method of claim 46, wherein said T cells are isolated from peripheral blood, or a fraction thereof, of a patient.

54. A method of claim 46, wherein said T cells are contacted with said peptide by contacting said T cells with an antigen presenting cell pulsed with, transduced to express, or differentiated from a cell transduced with a nucleic acid encoding, said peptide.

55. A method of claim 46, wherein said T cells are contacted with an antigen presenting cell pulsed with, transduced to express, or differentiated from a cell transduced with a nucleic acid encoding, a peptide having an amino acid sequence selected from the group consisting of GVFPSAPSPV (SEQ ID NO:6), YVFPSAPSPV (SEQ ID NO:7), GLFPSAPSPV (SEQ ID NO:8), GVMPSAPSPV (SEQ ID NO:9), YLFPSAPSPV (SEQ ID NO:10), and GLMPSAPSPV (SEQ ID NO:11).

56. A method of claim 46, wherein said T cells are CD8+ T cells.

57. A method for stimulating or expanding T cells comprising contacting said T cells with an antigen presenting cell pulsed with, transduced to express, or differentiated from a cell transduced with a nucleic acid encoding, an amino acid sequence of $X_1X_2X_3$PSAPSPX_4 (SEQ ID NO:5), wherein: X_1 can be any amino acid; X_2 can be L, M, A, I, V, or T; X_3 can be a hydrophobic residue, methionine, or alanine; and X_4 can be V, M, L, A, I, or T.

58. A method of claim 57, wherein X_1 is tyrosine (SEQ ID NO:34).

59. A method of claim 57, wherein X_2 is leucine (SEQ ID NO:35).

60. A method of claim 57, wherein X_3 is alanine (SEQ ID NO:36).

61. A method of claim 57, wherein said peptide comprises an amino acid sequence selected from the group consisting of GVFPSAPSPV (SEQ ID NO:6), YVFPSAPSPV (SEQ ID NO:7), GLFPSAPSPV (SEQ ID NO:8), GVMPSAPSPV (SEQ ID NO:9), YLFPSAPSPV (SEQ ID NO:10), and GLMPSAPSPV (SEQ ID NO:11).

62. A method of claim 57, wherein said peptide has an amino acid sequence selected from the group consisting of GVFPSAPSPV (SEQ ID NO:6), YVFPSAPSPV (SEQ ID NO:7), GLFPSAPSPV (SEQ ID NO:8), GVMPSAPSPV (SEQ ID NO:9), YLFPSAPSPV (SEQ ID NO:10), and GLMPSAPSPV (SEQ ID NO:11).

63. A method of inhibiting the growth of a cancer cell expressing XAGE-1 comprising contacting said cell with a cytotoxic T lymphocyte specific for a peptide comprising an amino acid sequence of $X_1X_2X_3PSAPSPX_4$ (SEQ ID NO:5), wherein: X_1 can be any amino acid; X_2 can be L, M, A, I, V, or T; X_3 can be a hydrophobic residue, methionine, or alanine; and X_4 can be V, M, L, A, I, or T.

64. A method of claim 63, wherein said peptide comprises an amino acid sequence selected from the group consisting of GVFPSAPSPV (SEQ ID NO:6), YVFPSAPSPV (SEQ ID NO:7), GLFPSAPSPV (SEQ ID NO:8), GVMPSAPSPV (SEQ ID NO:9), YLFPSAPSPV (SEQ ID NO:10), and GLMPSAPSPV (SEQ ID NO:11).

65. A method of claim 63, wherein said peptide has an amino acid sequence selected from the group consisting of GVFPSAPSPV (SEQ ID NO:6), YVFPSAPSPV (SEQ ID NO:7), GLFPSAPSPV (SEQ ID NO:8), GVMPSAPSPV (SEQ ID NO:9), YLFPSAPSPV (SEQ ID NO:10), and GLMPSAPSPV (SEQ ID NO:11).

66. An isolated immunogenic peptide of 50 or fewer amino acids comprising an amino acid sequence $X_1X_2X_3PSA\ X_5\ X_6\ X_7X_4$ (SEQ ID NO:41), wherein: X_1 can be any amino acid; X_2 can be L, M, A, I, V, or T; X_3 can be a hydrophobic residue, methionine, or alanine; and X_4 can be V, M, L, A, I, or T; X_5 is either proline or is absent; X_6 is either serine or is absent; and X_7 is either proline or is absent; provided that, (i) when X_5 is absent, X_6 is serine and X_7 is proline; (ii) when X_6 is absent, X_5 and X_7 are proline, and (iii) when X_7 is absent, X_5 is proline and X_6 is serine.

67. A use of an isolated immunogenic peptide of claim 66 for the manufacture of a medicament to raise an immune response to cells expressing a protein encoded by XAGE-1.

68. An isolated nucleic acid encoding an immunogenic peptide of claim 66.

69. A use of an isolated nucleic acid of claim 68 for the manufacture of a medicament to raise an immune response to cells expressing a protein encoded by XAGE-1.

70. A method of inhibiting the growth of an XAGE-1-expressing cancer cell, said method comprising administering an isolated immunogenic peptide of claim 66,

wherein administration of said peptide stimulates or activates cytotoxic T lymphocytes against a protein expressed from XAGE-1, thereby inhibiting the growth of said XAGE-1-expressing cancer cell.

71. A method of inhibiting the growth of an XAGE-1-expressing cancer cell, said method comprising administering an isolated nucleic acid sequence of claim 68; wherein administration of said nucleic acid sequence results in expression of a peptide which stimulates or activates cytotoxic T lymphocytes against a protein expressed from XAGE-1, thereby inhibiting the growth of said XAGE-1-expressing cancer cell.

72. A method for stimulating or expanding T cells in vitro comprising contacting said T cells with an isolated peptide of claim 66.

73. A method of inhibiting the growth of an XAGE-1-expressing cancer cell, comprising contacting said cell with a cytotoxic T lymphocyte specific for a peptide comprising a sequence of SEQ ID NO:5.

74. A method of inhibiting the growth of an XAGE-1-expressing cancer cell, comprising contacting said cell with a cytotoxic T lymphocyte specific for a peptide comprising a sequence of SEQ ID NO:41.